

AperTO - Archivio Istituzionale Open Access dell'Università di Torino

**First report of leaf spot of lettuce (*Lactuca sativa* L.) caused by *Phoma tropica* in Italy.**

**This is a pre print version of the following article:**

*Original Citation:*

*Availability:*

This version is available <http://hdl.handle.net/2318/128155> since 2016-11-12T12:34:48Z

*Terms of use:*

Open Access

Anyone can freely access the full text of works made available as "Open Access". Works made available under a Creative Commons license can be used according to the terms and conditions of said license. Use of all other works requires consent of the right holder (author or publisher) if not exempted from copyright protection by the applicable law.

(Article begins on next page)

This is the author's final version of the contribution published as:

Garibaldi A.; Gilardi G.; Ortu G.; Gullino M. L.. First report of leaf spot of lettuce (*Lactuca sativa* L.) caused by *Phoma tropica* in Italy.. PLANT DISEASE. 96 pp: 1380-1380.

When citing, please refer to the published version.

Link to this full text:

<http://hdl.handle.net/2318/128155>

**First Report Of Leaf Spot Of Lettuce (*Lactuca sativa* L.) Caused By *Phoma tropica* in Italy.** A. Garibaldi, G. Gilardi, G. Ortu and M. L. Gullino, Centre of Competence for the Innovation in the Agro-Environmental Sector (AGROINNOVA) Via Leonardo da Vinci 44, 10095 Grugliasco, Italy.

Lettuce (*Lactuca sativa* L.) is widely grown in Italy, with the production for the preparation of ready-to-eat salads becoming increasingly important. During the spring of 2011, a previously unknown leaf spot was observed on *L. sativa* plants, cv Rubia, grown in several plastic tunnels in Lombardy (northern Italy), 20-25 days after sowing. Thirty to forty per cent of leaves of the plants growing in the part of the tunnel with the highest relative humidity were affected. Leaves of infected plants showed extensive and irregular, dark-brown, necrotic lesions, with a chlorotic halo. Lesions initially ranged from 0.5 to 3 mm then eventually coalesced reaching 2-3 cm diameter, showing a well defined, dark-brown border. Affected leaves were interested by senescence and withered. The crown was not affected by the disease. Diseased tissue was excised, immersed in a solution containing 1% sodium hypochlorite for 60s, rinsed in water, then cultured on potato dextrose agar (PDA) medium, added with 25 mg/l of streptomycin sulphate. After 5 days a fungus developed producing a greenish-grey mycelium with a white border when incubated under 12 h/day of fluorescent light at 21-23 °C. In order to favour the production of conidia, the fungus was transferred on malt extract agar (MA), maintained under 12 h/day of fluorescent light at 22°C. After 15 days, black pycnidia, 175-225 µm, did develop, with conidia hyaline, elliptical, unicellular, measuring 3.2-6.7 x 1.1-3.2 (average 5.5x1.9) µm. On the basis of these morphological characteristics the fungal causal agent of the disease could be related to the genus *Phoma* (2). The Internal Transcribed Spacer (ITS) region of rDNA of the isolate PHT30 was amplified using the primers ITS1/ITS4 and sequenced. BLAST analysis (1) of the 466 bp segment showed a 99% similarity with the sequence of *Phoma tropica* (GenBank Accession number JF923820.1). The nucleotide sequence has been assigned the GenBank Accession JQ954396. Pathogenicity tests were performed by spraying healthy 20 day-old lettuce plants, cv Rubia, with a spore suspension ( $1 \times 10^5$  conidia/ml) prepared from the isolate grown on MA culture. Plants inoculated with water alone served as controls. Ten plants were used. Plants were covered with plastic bags for 5 days after inoculation and maintained in a growth chamber at 20 °C and 80% RH. The first foliar lesions developed on leaves 12 days after inoculation. Control plants remained healthy. The pathogen was consistently reisolated from leaf lesions. The pathogenicity test was completed twice. To our knowledge, this is the first report of the presence of *Phoma tropica* on lettuce in Italy as well as worldwide. In US, the presence of *P. exigua* was reported in 2006 (3). The economic importance of the disease at present is limited, probably also because symptoms can be confused with those

caused by *Botrytis cinerea*. However, *P. tropica* could become a more significant problem due to the importance of the crop.

*References:* (1) S. F. Altschul *et al.* Nucleic Acids Res., 25:3389, 1997. (2) G.H. Boerema. Trans. Br. Mycol. Soc., 67, 289, 1976. (3) S.Y. Koike. Plant Disease, 90, 1268, 2006.